

globerica), and probably to want the standing bony crest which forms so marked a feature in this species. From the three birds brought to me by José Ordoñez, I am able to state that the female differs in no way from the male except in being rather smaller in size, and in having the crest on the head rather shorter and more tapering. All three specimens were adult, and the ovary of the females very plainly developed. Of the sex of the male, too, I can speak with equal certainty. Comparing the sternum with that of *Penelope purpurascens*, a very marked affinity is observable. The cranial protuberance is attached to the skull. It is hollow, the cavity being filled with a cellular tissue, as in the bill of a Toucan (*Ramphastos*). The enclosing bone is extremely fragile, and in the females may easily be crushed between the finger and thumb. The crest is deep vermilion in colour, also the legs and toes. The bill is a very pale straw colour, and the iris white. The male, the day after it was killed, weighed 5 lbs.

11 Hanover Terrace, Regent's Park,
May 25th, 1860.

XXXI.—*Recollections of the Swans and Geese of Hudson's Bay.*

By GEORGE BARNSTON, of the Hudson's Bay Company's Service.

SWANS, except in a few particular localities, are scarce, rather than plentiful birds on the shores of Hudson's Bay. They are seen at the same time as the other migratory birds, winging their way to the secluded recesses of the North, resting throughout the interior, and losing units of their number here and there by the Indian's gun. In the scarcity of their favourite food (the roots of the *Sagittaria sagittifolia*), they have recourse to those of *Equiseta*, and the tender underground runners of some grasses of the northern latitudes. They sometimes breed in the interior before arriving at the coast. I had two eggs brought to me from a nest on the banks of a lake near Norway House; but I cannot say whether these were of the *Cygnus americanus* or *C. buccinator*. Towards Eastmain Fort, in James's Bay, a considerable number of Swans hatch; and a few are killed

by the natives there, as they pass up and down narrow rivers communicating with the sea-coast and the lakes of the interior. The numerous flocks that are to be seen in the winter months on the expanses of the larger rivers that run into the Pacific, embellishing all the larger sheets of water with their silvery strings, must break up as they enter or advance upon their long spring journey, for they are generally seen but few together in the neighbourhood of Hudson's Bay. They may be more united, however, at the particular haunts where they breed.

Superior to the Swan as an article of food, the Goose, of every species, is the favourite dish of the Indian of Hudson's Bay. When the long and dreary winter has fully expended itself, and the Willow Grouse have taken their departure for the plains of the North, there is frequently a period of rank starvation to many, who are on their way from their wintering ground to the Trading Posts. The first call, therefore, of the large Canada or Grey Goose is heard with a rapture known only to those who have endured great privations. The tents are filled with hope, to which joy soon succeeds, when the happy father or hopeful son and brother throw down their grateful load.

The *Bernicla canadensis*, here alluded to, is the largest of our Geese, and is almost always first seen in the Hudson's Bay Company's territories,—at first perhaps only one straggler, or two or three at most together, but soon to be followed by a continuous flock of fresh immigrants. They are the advanced guard of the serried legions of other water-fowl. This spring-bird, as if aware of the general favour in which it is held, spreads itself diffusively over the whole breadth of the continent. Its disposition has less of wildness in it than that of the Snow Goose. We find it hatching in quiet holes and corners where there is placid water and grass and rushes to afford it sustenance. It is at home over the whole wooded country, as well as on the extensive marshes of the sea-coast, and the mossy barrens of the Esquimaux and Chipewyan Lands. During the winter, like the other species, they take refuge in the more temperate parts of the country, where they can always have open water. I have seen a small flock in the strong open current of water above Lachine, near Montreal, in the month of January or February; but this is rare.

During the whole of the winter season, before Oregon was settled in by the Americans, the Company's post of Fort Vancouver used to be supplied by Indian hunters with Grey Geese, large and small, as well as an occasional Swan and Snow Goose,—at times so liberally, that rations could be furnished to an establishment of thirty or forty out of the store. Some of these Geese had been killed by the bow and arrow. They were good food, but not in equal condition to what they are in the North after a week's feed. The great mass of the Canada Grey Geese winter, I have no doubt, to the southward of the Missouri and Platte waters, in the swamps of Florida and the lower Mississippi, and on the waters of the western side of the continent, near their confluence with the Pacific. In these last haunts they are thinned by the Indian's arrow, as they are in the North by the more deadly gun.

The Lesser Grey Goose (*Bernicla hutchinsii*) arrives later in the season than the other, and about the same time as the Snow Goose (*Anser hyperboreus*). They are shot in considerable quantities at Albany and elsewhere along the coast of James's Bay. I believe they do not incubate, like the large Geese, in scattered or detached portions throughout the wooded country, but proceed in large and united flocks to the extreme North, where they may have quiet quarters. On their arrival at the coast, about the beginning of May, they commence feeding in the salt marshes amongst the soft white-rooted grasses,—continuing there for a fortnight or three weeks with the "Wavies" or Snow Geese. By this time they are in good plight, and they take their departure, not again to appear until their return with the young broods in the month of September. These smaller Geese are killed in fewer numbers on their passage to Hudson's Bay than the larger, which may be accounted for by their habits; but when once they settle on their feeding-ground, the tables turn upon them, and the slaughter committed in their ranks, especially at Albany, is wonderful.

The Brant Goose (*Bernicla brenta*), the Callewapimaw of the Coast Crees, is but little looked after or cared for in Hudson's Bay, being a small species, keeping out to sea on the shoals near low water-mark, and affording a less esteemed dish

for the palate. They arrive, I believe, latest of all the birds of the genus.

The Snow-Goose (*Anser hyperboreus*), although playing a less conspicuous part in the interior of the country, where it seldom alights except along the margins of the large lakes and streams, and the extensive grassy lakes of the prairies, becomes, from its consolidated numbers, the first object of sport in James's Bay. The havoc amongst them is great, and even the Indian gets fatigued at the trade of killing. In the fall, on some days when the flocks of young "Wevois" or Wavies, as they are called, are numerous and passing southwards, it is no uncommon thing for a good shot to send a hundred to his lodge between sunrise and sunset. In such cases he generally has two guns in his willow and grass stand or concealment, and his wife or son loads, while he attends to the motions of the Geese, brings them round to the bush or wooden decoys by calling, and fires as they pass. These Geese form the staple article of food for rations at the Albany Factory. They are the last to leave the coast for southern climes; and this takes place generally towards the end of the month of September, some weak broods and wounded birds lingering to the first week of October. They are deliberate and judicious in their preparations for their long flight, and make their arrangements in a very business-like manner. They leave off feeding in the marshes for a day or more, keeping out with the retreating ebb tide, and retiring as it were by steps, unwillingly, at its flow, adjusting their feathers continually, and dressing them with their fatty oil. They are then ready for the first north or north-westerly wind that blows; and in 24 hours' time the coast that had been resonant with their petulant and incessant cries, and covered patchlike by their whitened squadrons, is silent and deserted—a barren and frozen shore.

The friendly intercourse that exists between these Geese and the Blue Wavies (the *Anser cærulescens*) has perhaps induced some to suppose that they were merely varieties; but this is a mistake. The young white Wavies arrive from the North with their parents, without mixture of other geese in the flocks; and they have the same white garb as the old birds, but with the head as if it had been soiled with rust of iron, and the bill, as is

well known with young birds, tender, soft, and compressible ; while, on the other hand, the *Anser carulescens* comes down upon the eastern coast, also in perfectly distinct flocks, the young birds having a more diffused and darker blue colour, as well as being of smaller size, with the beak softer and the flesh more tender. About this there can be no mistake. In the spring, James's Bay is frequently crossed by both species of the Wavy, at Capes Jones and Henrietta Maria ; and occasionally two or three Blue may be seen in a large flock of White on the Albany shore, while two or three White may be also observed accompanying the full flocks of Blue on the Eastmain side ; but this is not singular, as their cry is almost the same, and they are certainly closely allied species—but not varieties. By Indian report, a great breeding-ground for the Blue Wavy is the country lying in the interior from the N.E. point of Labrador, Cape Dudley Digges. Extensive swamps and impassable bogs prevail there ; and the Geese incubate on the more solid and driest tufts dispersed over the morass, safe from the approach of man or other than a winged enemy.

The *Anser gambelii*, or Laughing Goose, is seldom seen in the southern part of the Bay. At York they are less rare, and at Churchill frequent enough. Although I cannot speak with certainty, I am disposed to believe that the Laughing Goose is more an inhabitant of Central and Western America in the winter months, than of the eastern side, and that therefore, in its progress northward, it strikes upon the coast westward of James's Bay, where it is seldom seen. On the Lower Columbia and in Oregon, or Willamette Valley, they abound, with other wild-fowl, when, as frequently happens, the winter is mild and there is no snow on the ground.

Of all the Geese enumerated, the *Anser carulescens* appears to be the least known, and, it is possible, frequents in summer only James's Bay and the Eastmain of Labrador, at the extremity of which peninsula it hatches. Of its winter haunts I cannot speak with certainty, not having seen them either on the Columbia or on the north-west coast. It may be that they adopt the sea-coast in a lower latitude as a home, and are to be found towards Southern Mexico.

It is difficult to form a very accurate idea of the numbers of that portion of the genus *Anser* which we have just passed under review. Of the quantity shot at particular points where they become a matter of provision for the Hudson's Bay Company's establishments, we can arrive at a pretty exact estimate. Seventeen to twenty thousand Geese are sometimes killed by the Albany Indians in the fall of the year, and perhaps about half of that number in the spring, say the end of April and the month of May, making a total for Albany alone, of all descriptions of the above-mentioned geese, of 30,000

I cannot speak so decidedly as to the other parts ; but,

at a fair computation from what I know of them,	
Moose may afford in some years nearly	6,000
Rupert's River Post	5,000
Eastmain and to the northward	4,000

making a total for James's Bay of 45,000

Along the Hudson's Bay western coast in the northern department, I should say that far fewer were bagged.

Severn stands well as a hunting-station where Geese are plentiful and Indians numerous, and I cannot compute its annual yield at less than 8,000

York Factory frequently fails in procuring any considerable supply, and I therefore would not rate it as giving more than 2,000

Churchill is generally better than this ; and when the Chipewyans belonging to the establishment come in great numbers to the Goose-hunt, we may reckon upon 2,500

We thus have an annual thinning of the wild Geese passing northwards and southwards along the coasts of Hudson's Bay of 57,500

But as many Geese must die wounded, and others be got hold of by the fox, we may safely make the total loss to the flocks running the fiery gauntlet as 60,000. Of these perhaps 40,000, or two-thirds, are shot in the fall.

Now supposing that one-eighth of the whole bands fall to the gun, we have a round number of 360,000 Geese proceeding

southwards from Hudson's Bay alone to the warmer latitudes. I cannot form an opinion of the comparative numbers to the westward, that is to say, of the Geese that leave the Arctic coast and wend their way straight to their winter quarters without touching the Bay at all; but supposing it to equal the flight of the body already mentioned, we shall then have 720,000, or perhaps say 800,000 Geese leaving the coasts east of the Rocky Mountains for their places of hybernation:—the Brant Geese are not included. This may be supposed much underneath the true estimate, yet I would not wish to give a greater; for although the swarms of Geese passing appear at times prodigious, yet, like many other scattered objects, when they come to be collected and counted, they become subject to a moderate figure. Say that Geese fly about a yard apart: this would make a winged string of life 450 miles in length; and suppose the rate of flight was 40 miles per hour, and the line led by one going straight south, they would take eleven hours in passing any given object.

Michipicoton, Dec. 6th, 1859.

XXXII.—*Notes on the Humming-birds of Guatemala.*

By OSBERT SALVIN, M.A., F.Z.S.

THE following notes relate to species of Humming-birds observed in Guatemala, at Dueñas, Coban, and Salamá, during the months of August, September, October and November 1859.

The references to each species will be found in the previous papers on the Ornithology of Central America published in this Journal.

As I have collected many examples of the several species of Humming-birds, I take the opportunity of illustrating, by actual figures, the ratio in numbers the males bear to the females, and give under each separate species that ratio, as shown by the specimens before me.

It may be from not having hit upon the localities for the opposite sex, that I have found one, be it male or female, usually largely predominating; yet it seems somewhat strange that the localities in which I have worked should have been, with few exceptions, those in which the males most abound. I will not